PART I—Section 2.

GENERAL.

Notification No. G. 50 (one)—Med. 56-18-112, dated 8th July 1919.

The following Memorandum on Influenza received from the Government of India is republished for general information:—

INFLUENZA.

MEMORANDUM.

During 1918 a peculiar and exceptionally widespread epidemic of Influenza appeared, which affected the inhabitants of practically every continent. This epidemic not only caused directly or indirectly, a very large number of deaths which in India alone were computed to exceed five million, but left behind it a legacy of minor ailments with consequent national debility. The economic effect through the disorganization of trade cannot be estimated but must have been very great.

Although previously severe and worldwide epidemics have been known to occur, in none were the spread and mortality so alarming as in the epidemic of 1918. So far as it affected India, the epidemic of the summer months assumed a mild form of the disease. After an apparent departure, it re-appeared in a virulent and very fatal form during the autumn months and then seemingly disappeared at the end of the year. In fact this was not so, as small localized epidemics have occurred and sporadic cases have continued throughout the present year. As the experience of epidemics in England and elsewhere has been that recrudescences at intervals are liable to occur, it is highly desirable to be prepared for such an event in India.

With this object in view, this Memorandum has been prepared, which sets forth opinions founded upon the valuable observations made during the 1918 pandemic and contained in the world's medical literature, and which furnishes in the abstract a list of the preventive measures that promise to give the best results in India. It is not possible to say that even with the adoption of the suggested measures it will be possible to prevent the disease becoming epidemic, but it can safely be asserted that the observance of these rules will diminish the incidence of the infection.

The organism responsible for the epidemic of influenza has not been definitely identified. The weight of evidence still points, however, to the bacillus, called the bacillus of Pfeiffer being the cause: at all events it is intimately associated with the disease. Judging from clinical and epidemiological standpoints, the disease which appeared in India was identical with the last great pandemic of influenza which occurred in 1890-91. In the absence, however, of definite proof of the casual organism, this statement is a surmise although a probable one.

Influenza is a disease which exhibits an intense infectivity and an incubation period which is relatively very short, *i.e.*, from 6 to 48 hours. It is commonly believed that the disease is spread by the infected secretions of the throat and nose of infected persons finding lodgment in the nose and throat of uninfected people. The commonest means by which this occurs is by coughing and sneezing, especially in confined spaces. Methods of prevention, then, will consist of preventing communication of infection by these channels.

These measures may be considered from two standpoints.

I—Procedure recommended for Military, Municipal, and other Administrative Bodies.

It is realized that no legislative measures can be adopted in most communities and moreover since the limitation of an epidemic of this nature depends more upon individual than upon legal enactments, the following general recommendations are made:

A. Education of the public with regard to such facts as the following:—

(1) The golden rule is to keep fit and avoid infection as much as possible.

(2) The way to keep fit is to cultivate healthy and regular habits, take regular exercise, to eat good food, and to avoid fatigue, chill and alcoholism. Healthy living does not of itself ensure against attack, but it makes the patient better able to withstand the complications which may kill.

(3) The earliest symptoms of influenza are usually those of a severe feverish cold: it is most infectious in the earliest stages; it is spread by discharges from the mouth and nose; it kills mainly by its complications and every person suffering from the disease, no matter of how mild a form, is a danger to others. For these reasons coughing, sneezing, spitting and hawking in public places are dangerous.

(4) It is not always possible to avoid infection, but the risks can be lessened by 30

(a) healthy living;

(b) working and sleeping in well-ventilated rooms;

(c) avoiding crowded gatherings and close ill-ventilated buildings or carriages;

(d) wearing warm clothing;

(e) irrigating the nose with saline solution (see later);

(f) wearing in certain instances a mask of prescribed pattern (see later).

(5) Do not lay too much emphasis upon drugs in the hope of preventing infection.

(6) Those attacked should—

(a) go to hospital or go home, go to bed and keep warm;

(b) call in a doctor, where possible;

(c) occupy, if possible, a separate bedroom or a bed that is screened off from the rest of the room;

(d) when coughing or sneezing hold a handkerchief in front of the mouth, the handkerchief should be boiled or sterilized in antiseptics, or burnt if of paper. Similar attention should be paid to linen, etc., soiled by discharges, by persons suffering from common cold or catarrh, as it is undoubted that in apparently healthy communities the infective agents of influenza are frequently present in such persons.

(e) Do not return to work, through a sense of duty, until convalescence is well established, and during convalescence be extremely careful to avoid chill which may induce a relapse or complications;

(f) avoid meetings and places of entertainment for at least one week after the temperature has become normal.

Such education we believe should be made compulsory in all schools and colleges; the press might aid by giving publicity to such measures as are recommended for adoption.

B. The closing of meeting places, schools, colleges, cinema halls, dancing halls, skating rings, churches, etc.—Regarding these measures universal recommendations cannot be made. The widespread depression in the minds of the general population during epidemic times must be remembered. Such depression may be a predisposing factor in the occurrence of the disease, and it is felt that if measures were passed such as closing all theatres and resorts of amusement, the effect on the public health might be worse than if nothing was done at all.

Again, take the instance of schools; if children were taken from well ventilated schools they might add to the congestion of already overcrowded houses. This matter must be left to individual localities to settle, bearing in mind that it is necessary to limit the number of unnecessary gatherings and that it is necessary to keep up the morale of the public. In this connection attention should be drawn to the dangers associated with travelling in cars and carriages. It is believed that a fertile source of the spread of infection occurs in overcrowded railway carriages, tram cars, etc. The prevention of overcrowding should especially be insisted on at such times and scrupulous cleanliness of carriages and cars be enforced. It is believed that much mischief was done in the last epidemic by the exodus from cities of panic-stricken populations, and facilities for such exodus should be prohibited.

C. The wearing of face masks.—Opinions are divided as to the efficacy of this measure: it largely depends upon their construction. The masks should be of very close woven muslin or gauze. Recent work in America would seem to point to a gauze with a mesh 44 by 40 to the inch.; three to six layers of fine muslin should form the mask and they should be applied so as to cover the nose and mouth completely. The gauze is cut 8 inches wide and 23 inches long. Details of the method of manufacture are given in a foot-note.*

The use of these masks should be made compulsory among nurses and attendants in hospitals which admit influenza patients and might be adopted in houses where cases of influenza are present and among volunteers and others who come in contact with the sick. The wearing of a face mask, whilst having a certain protective action, exerts an educative influence upon the patients. Though it would be more reasonable for the patients to wear a mask, this is impracticable in view of further impending respiration which already may be difficult.

As there is a small possibility that droplets of infective matter lodging in the eyes may give rise to the disease, the use of goggles by such attendants may also be recommended.

Another suggested use of face masks is by barbers, dentists, etc., whose occupation brings them into close contact with a number of persons, and who if incubating the disease may otherwise infect their clients.

* The gauze 44 by 40 mesh is cut 8 inches wide and 23 inches long. The sides and one end are turned down one quarter inch. It is folded twice, the unturned end first, making a 7½ inch square. The opposite diagonal corners are cut off 1 inch and the raw edge is turned in one-half inch. It is stitched firmly all around. A 1 inch dart 1½ inches long is taken up at the middle of each side of the mask. A 14-inch tape is sewed on the opposite uncut corners. This mask has the advantage of covering the nose and mouth and in making the traction on the chin and not drawing on the nose and lips.

D. Isolation.—It is feared that insistence upon isolation of influenza cases in India is impossible. For one thing there is not sufficient hospital accommodation. Every case, however, of influenzal pneumonia should be rigorously isolated as the germs present in post-influenzal pneumonia are themselves infectious, altogether apart from the causative organisms of influenza. Hospitals should attempt to separate uncomplicated influenzal cases from those suffering from secondary pneumonia.

E. Sprays and Gargles.—The use of disinfectant sprays and gargles is not recommended. Disinfectants are apt to remove the protective mucus of the throat and mouth to cause irritation of the mucus membranes or lining membranes of these cavities and so predispose to the lodgment of infective material. They can hardly be used strong enough to be protective without causing violent irritation.

The use, however, of a solution of common salt one teaspoonful to a pint of 20 ozs. might be productive of good results if used as a gargle or sniffed up the nose, as it will produce an excess of the normal secretions of the nose and throat and this leads to the washing-out of micro-organisms.

F. Disinfection.—With regard to the disinfection of infected rooms, it seems fairly established that ordinary cleansing with water, airing, and sunning effect as much good as the use of actual disinfectants. In addition as already suggested, all handkerchiefs, sheets and clothings recently soiled (within 48 hours, as drying kills the infective agent) should be boiled or otherwise sterilized.

The periodic disinfection on the above lines of public places, *e.g.*, railway waiting rooms, trams, rolling stock, dak bungalows, serais, etc., which in epidemic times may be taken to be infected, is also strongly recommended.

G. Quarantine.—A limited measure might be practised by local institutions such as resident colleges, schools, asylums and jails. A jail, for example, situated in an epidemic area might be rigid quarantine be reasonably certain of keeping out infection, or at least of delaying its appearance. There was evidence of the efficiency of this measure in certain jails in India during the last epidemic.

H. Notification.—Notification of all cases of influenza would be obviously impossible. A limited notification might, however, be adopted at ports; some value being likely to result from the notification of infected ships and the prompt removal to hospital of actual cases.

Notification of influenzal pneumonial is now compulsory in England and in Australia. This measure in India would only be possible amongst the military and in civil in large towns where the Municipal Acts already permit of the notification of all forms of infectious disease.

II. PROPHYLACTIC VACCINATION.

A mixed vaccine has been prepared and will be available in India in moderate quantities. Until its efficacy or its non-efficacy is established, we can offer no authoritative statement as to the advisability of general prophylactic inoculation.

III. MEASURES FOR ORGANIZED RELIEF.

(*a*) Local authorities should have ready lists of their requirements for doctors, nurses, the additional hospital staff required, such as sweepers, bhistis, etc., mask makers, motor cars, ambulance drivers and volunteers of all kinds necessary for the actual treatment of the sick; and have noted, as far as possible, the actual persons who could prove useful in various accessory capacities. A canvass of private cars which people are willing to lend as ambulances, might advantageously be made. Further, the names of volunteers, for district visiting and localization of cases should be noted.

In this connexion too it would be well for municipalities and other local authorities to entrust the actual arrangements prior to an epidemic and preparatory for it, to some already organized body such as the St. John's Ambulance Brigade Nursing Association, as in addition to the above, hospital requisites must be obtained, *e.g.*, beds, mattresses, etc. Lists of what are available should be made ready.

(*b*) Resources of men and material should be centralized under one central authority.

(*c*) The work of district visitors in a house-to-house canvass, referred to under paragraph (*a*) above, should be co-ordinated. Valuable information would thus accrue as to the actual extent of the disease. These visitors should also be instructed as to the type of case and home which would justify home treatment being adopted, and when hospital treatment is necessary.

A central clearing house or a bed dispensary might be instituted in large towns and severe cases be transferred from these to the hospitals. Hospitals should be warned to admit only severe cases as their resources will be taxed to the uttermost.

(*d*) It is needless to say that all other public health organizations, such as vaccination and plague organization staff, etc., should be utilized for the various measures of influenza epidemic control.